EXAMINER'S AMENDMENT

1.   An examiner's amendment to the record appears below. Should the changes

and/or additions be unacceptable to applicant, an amendment may be filed as provided

by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be

submitted no later than the payment of the issue fee.

Authorization for this Examiner's Amendment was given in a telephone interview

with Kelly Kasha on Wednesday, May 20, 2009.

<u>IN THE CLAIMS</u>

Please **CANCEL** the following claims: 12, 38
Please **AMEND** the following claims: 1, 16, 24, 29, 34

Claim 1 (CURRENTLY AMENDED) A system comprising:

a first node, which defines a first processor, provides a broadcast request for a

copy of data, the first node including a conflict state machine for managing non-data

responses to the broadcast request for the data provided from the first node, the first

node receiving a read conflict response to the broadcast request from the first node, the

read conflict response indicating that a second node, which defines a second processor,

has a pending broadcast read request for the data, the conflict state machine

transitioning to a conflict state <u>based on the read conflict response being a highest non-</u>

<u>data response</u> in response to the first node receiving the read conflict response;

a third node that provides the requested copy of the data to the first node in response to the broadcast request from the first node, the first node filling the copy of the data provided by the third node in a cache associated with the first node based on the state of the conflict state machine; and

a hybrid cache coherency protocol including a broadcast source snoop protocol implemented in conjunction with a forward progress protocol, wherein each of the first and second processors employs the broadcast source snoop protocol to issue a snoop request for the data and provide responses for the data, and wherein if the snoop request fails in the broadcast source snoop protocol, the hybrid cache coherency protocol transitions to the forward progress protocol and each of the first and second processors reissues a request for the data using the forward progress protocol;

the broadcast request provided by the first node is broadcast using a source broadcast cache coherency protocol, the source broadcast cache coherency protocol being chosen by the first node based on the state of the conflict state machine.

Claim 16 (CURRENTLY AMENDED) A multi-processor network comprising:

a first processor node operative to issue a first source broadcast request for data, the first processor node including a conflict state machine for managing non-data responses to the first source broadcast request for the data;

a second processor node operative to issue a second source broadcast request for the data;

a third node operative to provide a data response in response to the respective source broadcast requests of the first and second processor nodes, the third node being one of an owner processor node and a memory node;

the second processor node being operative to provide a read conflict response to the first source broadcast request when the second source broadcast request is a read request, the second processor node being operative to provide a second conflict response to the first source broadcast request when the second source broadcast request is a write request;

the conflict state machine transitioning to a first conflict state of a plurality of conflict states based on the read conflict response being a highest non-data response in response to the first processor node receiving the read conflict response, and the conflict state machine transitioning to a second conflict state of the plurality of conflict states in response to the first processor node receiving the second conflict response;

the first processor node being operative to implement a cache fill with the data provided by the third node if the conflict state machine transitions to the first conflict state; and

a hybrid cache coherency protocol including a broadcast source snoop protocol implemented in conjunction with a forward progress protocol, wherein each of the first and second processors employs the broadcast source snoop protocol to issue a snoop request for the data and provide responses for the data, wherein if any of the first and second source broadcast requests fails in the broadcast source snoop protocol, the hybrid cache coherency protocol transitions to the forward progress protocol and each

of the first and second processors reissues a request for the data using the forward

progress protocol;

<u>the broadcast request provided by the first node is broadcast using a</u>

<u>source broadcast cache coherency protocol, the source broadcast cache coherency</u>

<u>protocol being chosen by the first node based on the state of the conflict state machine.</u>

Claim 24 (CURRENTLY AMENDED) A computer system comprising:

a first processor operative to issue a source broadcast request for data, the first

processor including an associated conflict state machine for managing non-data

responses to the source broadcast request for the data;

a second processor operative to issue a source broadcast request for the data;

and

a third processor operative to provide a data response to both the first and second

processors in response to the source broadcast requests of the first and second

processors;

the second processor in response to the source broadcast request of the first

processor providing a read conflict response when the source broadcast request of the

second processor is a source broadcast read request, the second processor in

response to the source broadcast request of the first processor providing a second

conflict response when the source broadcast request of the second processor is a

source broadcast write request;

the conflict state machine transitioning to a first conflict state of a plurality of conflict

states if the first processor receives the read conflict response, the conflict state

machine transitioning to a second conflict state of the plurality of conflict states if the

first processor receives the second conflict response having a priority higher than the

priority of the first conflict response; and

the first processor being operative to fill the data provided by the third

processor in a cache associated with the first processor if the conflict state machine

transitions to the first conflict state in response to the first processor receiving the read

conflict response; and

a hybrid cache coherency protocol including a broadcast source snoop protocol

implemented in conjunction with a forward progress protocol, wherein each of the

first and second processors employs the broadcast source snoop protocol to issue the

source broadcast request for the data and provide responses for the data, and wherein

if the source broadcast request fails in the broadcast source snoop protocol, the hybrid

cache coherency protocol transitions to the forward progress protocol and each of the

first and second processors reissues a request for the data using the forward progress

protocol;

the broadcast request provided by the first node is broadcast using a

source broadcast cache coherency protocol, the source broadcast cache coherency

protocol being chosen by the first node based on the state of the conflict state machine.

Claim 29 (CURRENTLY AMENDED) A system comprising:

means for providing a broadcast request for data from a first node that defines
a first processor node using a first cache coherency protocol, the means for providing
the broadcast request including means for managing, non-data responses to the
broadcast request and for transitioning among a plurality of conflict states in response to
the non-data responses, wherein the first cache coherency protocol is a broadcast
source snoop protocol of a hybrid cache coherency protocol, and wherein broadcast
source snoop protocol is implemented in conjunction with a forward progress protocol of
the hybrid cache protocol;

means for providing a read conflict response from a second node that, defines a
second processing node to the broadcast request from the first node when the second
node has a pending broadcast read request for the data, wherein the means for
managing non-data responses transitions to a conflict state of the plurality of conflict
states according to a highest priority non-data response received by the means for
providing the broadcast request;

wherein each of the first and second processors employs the broadcast source
snoop protocol to issue a snoop request for the data and provide responses for the
data;

means for providing the data from a third node to the first node in response to the
broadcast request from the first node; and

means for placing the data from the third node in a cache associated with the first
node in response to the read conflict response from the second node causing the

means for managing non-data responses to transition to the conflict state; and

if the broadcast request fails in the broadcast source snoop protocol, means for

transitioning to the forward progress protocol, wherein each of the first and second

processors reissues a request for the data using the forward progress protocol;

the broadcast request provided by the first node is broadcast using a

source broadcast cache coherency protocol, the source broadcast cache coherency

protocol being chosen by the first node based on the state of the conflict state machine.

Claim 34 (CURRENTLY AMENDED) A method comprising:

providing a source broadcast request from a first node for data using a broadcast

source snoop protocol of a hybrid cache coherency protocol, broadcast source snoop

protocol being implemented in conjunction with a forward progress protocol of the hybrid

cache protocol, the first node defining a first processor;

providing a read conflict response to the first node from a second node in response

to the source broadcast request from the first node, the read conflict response

indicating that the second node has a pending broadcast read request for the data, the

second node defining a second processor;

wherein each of the first and second processors employs the broadcast source

snoop protocol to issue a snoop request for the data and provide responses for the

data;

transitioning a state of a conflict state machine, which is part of the first node based on the read conflict response being a highest priority non-data response that is received by the first node;

providing the requested data to the first node from a third node in response to the source broadcast request from the first node;

placing the data provided by the third node in a cache associated with the first node based on the state of the conflict state machine; and

if the broadcast request fails in the broadcast source snoop protocol, transitioning to the forward progress protocol, wherein the first processor reissues a request for the data using the forward progress protocol;

the broadcast request provided by the first node is broadcast using a source broadcast cache coherency protocol, the source broadcast cache coherency protocol being chosen by the first node based on the state of the conflict state machine.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BARBARA N. BURGESS whose telephone number is (571)272-3996. The examiner can normally be reached on M-F (8:00am-4:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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May 20, 2009

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